

WHAT IS CLAIMED IS:

1. A method for extending the lifetime of a biologically active agent of interest, said method comprising:

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administering to the vascular system of a mammalian host a first compound, said first compound comprising (i) a reactive functional group which reacts with proteins to form stable covalent bonds and (ii) either a biologically active agent of interest or a first binding entity which is a member of a specific binding pair consisting of said first binding member and a complementary second binding member, whereby said reactive functional group reacts with at least one of mobile protein and cellular components of the vascular system to produce modified vascular components;

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wherein when said first compound comprises said first binding entity, the additional step of administering a second compound comprising said second binding entity and a biologically active agent of interest,

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wherein said biologically active agent of interest is added in an amount to achieve its biological function over an extended period of time.

2. A method according to Claim 1, wherein said first compound comprises said biologically active agent of interest.

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3. A method according to Claim 1, wherein said agent of interest is an immunoglobulin or binding fragment thereof.

4. A method according to Claim 1, wherein said agent of interest is a synthetic peptide.

5. A method according to Claim 1, wherein said protein is a glycoprotein.
6. A method according to Claim 1, wherein said agent of interest is a
5 naturally occurring compound.
7. A method according to Claim 1, wherein said agent of interest is a synthetic organic compound of less than about 5 kDa.
- 10 8. A method according to Claim 1, wherein said agent of interest is an immunogen.
9. A method according to Claim 1, wherein said reactive functional group
15 is a carboxylate ester which reacts with amines in an aqueous medium to form amides.
10. A method for extending the lifetime in a mammalian host of an immunogen for enhancing the immune response, said method comprising:
- 20 administering to the vascular system of a mammalian host a first compound, said first compound comprising (i) a reactive functional group which reacts with proteins to form stable covalent bonds and (ii) a first binding entity which is a member of a specific binding pair consisting of said first binding member and a complementary second binding member, whereby
25 said reactive functional group reacts with at least one of mobile protein or cellular components of the vascular system to produce modified vascular components;

administering a second compound comprising said second binding entity and an immunogen;

whereby said host mounts an immune response to said immunogen
5 with the production of antibodies.

11. A blood composition comprising conjugates of immunoglobulins and serum albumin covalently bonded to a biologically active agent as the major protein conjugates in said blood composition, said conjugates resulting from
10 the addition of a first compound, said first compound comprising a reactive functional group which reacts with proteins to form stable covalent bonds and either a biologically active agent of interest or a first binding entity which is a member of a specific binding pair consisting of said first binding member and a complementary second binding member, to blood *in vivo*.

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12. A blood composition according to Claim 11, wherein said biologically active agent is biotin.

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